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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,236	08/18/2003	Robert O. James	85466CEB	3297

7590 09/23/2005

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EXAMINER

LEE, RIP A

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 09/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/643,236		JAMES ET AL	
	Examiner		Art Unit	
	Rip A. Lee		1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Please correct the spelling of "potassium" in Table II to "potassium." Appropriate correction is required.

Drawings

2. The drawings are objected to because they have been hand drawn (Figures 3, 4, 5, and 6). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 and 17-19 of copending Application No. 10/642,779. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons.

Both claim sets are drawn to a nanocomposite article comprised of host material and core-shell nanoparticles. In particular, the core, and shell exhibit temperature sensitive optical vectors that are directionally opposed to that of host. Also, the condition that $n_{\text{shell}} < n_{\text{host}} < n_{\text{core}}$ must be met. In a specific embodiment, the host material is PMMA ($dn/dT = -105 (10^{-6}/^{\circ}\text{C})$); there is also mentioned polycarbonate as host material. Select nanoparticles and corresponding particle size ranges are recited in both sets of claims, as is coating of nanoparitcles with silica and MgF_2 .

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3-5, 8, and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohtsu *et al.* (U.S. 2004/0007169).

Ohtsu *et al.* discloses a core-shell nanoparticles comprised of a CdS core with a ZnS shell (example 15) which are ultimately dispersed in PMMA in a 50/50 wt ratio (example 8). According to the data provided in the specification (table II), both CdS and ZnS have temperature sensitive optical vectors that are directionally opposed to that of PMMA. The nanoparticles have a particle size in the range of 0.5-20 nm, with a preferred upper limit of about 15 nm (paragraph [0065]).

7. Claims 1, 3-8, and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Sudarshan *et al.* (U.S. 2004/0105980).

Sudarshan *et al.* teaches preparation of core-shell nanoparticles having an average particle size of 1 nm to 500 μ (claim 1). The core component is comprised of ceramic materials such as aluminum oxide, silicon dioxide, and magnesium oxide (claim 5). The shell is comprised of one or more coatings having a thickness of 1 nm to 10 μ (claim 8), and any of the ceramic materials described previously may serve as the coating (claim 12). The core-shell nanoparticles are used to make an optical fluid by dispersing into PMMA matrix (claims 71 and 72). Such an embodiment qualifies as “optical plastic article,” as recited in the claims. In this case, the plastic is not in the solid state.

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8. Claims 1-6, 8, 9, and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Duarte *et al.* (U.S. 6,888,862).

Duarte *et al.* discloses a core-shell nanoparticle composite article comprised of a ZnS core and a SiO₂ shell dispersed in PMMA (col. 7, line 11). Specifically, the core has a radius less than 40 nm, the shell has a thickness of less than 20 nm, and the shell comprises a low refractive index material such that $n_{\text{shell}} < n_{\text{host}}$, and the core comprises a high refractive index material (col. 7, lines 29-35).

Information Disclosure Statement

9. The information disclosure statement fails to comply with 37 CFR 1.98(a)(1), which requires the application number of the application in which the information disclosure statement is being submitted on each page of the list. The information disclosure statement has been placed in the application file; the information referred to therein has been considered for purposes of examination.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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September 15, 2005



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